

Phthalates in PVC floors taken up by the body in infants

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A new study at Karlstad University in Sweden shows that phthalates from PVC flooring materials is taken up by our bodies. Phthalates are substances suspected to cause asthma and allergies, as well as other chronic diseases in children. The study shows that children can ingest these softening agents with food but also by breathing and through the skin.

Phthalates are a group of [chemical compounds](#) that occur in [construction materials](#) and a great number of common [consumer goods](#) such as toys, cleaning solvents, packaging, etc. Phthalates are suspected of disrupting hormones and may be related to several [chronic diseases](#) in children, like asthma and allergies, as shown in earlier studies. Flooring materials using softened PVC contain phthalates and have previously been shown to be a significant source of phthalates in indoor dust. This new study was designed to investigate whether flooring materials using PVC and other housing-related factors, together with other individual factors, can be tied to the uptake of phthalates by infants.

[Urine samples](#) were taken from 83 randomly selected children between the ages of two and six months by the county council in Värmland in western Sweden. The prevalence of four types of phthalates in the urine was measured, and data were collected about flooring materials and the home, the family's lifestyle, and individual factors for the infants. The levels of certain phthalates (MBzP, a BBzP metabolite) proved to be higher in the urine of babies that had PVC materials on their bedroom floor. The levels of another phthalate metabolite related to DEHP were

lower in two-month-old children if they were exclusively breastfed, with no supplements.

Earlier studies from the current group have shown that PVC flooring can be tied to the occurrence of phthalates in indoor dust, and that exposure for BBzP in indoor dust could be associated with allergic conditions in children. These new data thus show that the uptake of phthalates in infants can be related to flooring materials using softened PVC in the home. It should be pointed out that both DEHP and BBzP are banned for use in toys for small children owing to health risks.

"With this study as a basis, we can establish that there are other sources that should be taken into consideration in regard to the uptake of banned chemicals and that we do not only ingest them in our food," says Carl-Gustaf Bornehag, professor of public health at Karlstad University and leader of the study. The findings also show that [phthalates](#) can be taken up in different ways, both through food and probably through breathing and through the skin.

Provided by Swedish Research Council

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